



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/632,570	08/01/2003	Jhon-Jhy Liaw	TSM03-0196	6324
43859	7590	10/31/2005	EXAMINER	
SLATER & MATSIL, L.L.P. 17950 PRESTON ROAD, SUITE 1000 DALLAS, TX 75252			VINH, LAN	
			ART UNIT	PAPER NUMBER
			1765	
DATE MAILED: 10/31/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/632,570

Applicant(s)

LIAW, JHON-JHY

Examiner

Lan Vinh

Art Unit

1765

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 August 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 7-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 8-19, 21-25, 27-30 and 33-38 is/are rejected.
- 7) ☒ Claim(s) 7, 20, 26, 31 and 32 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-4, 8-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Tseng (US 2002/0090763)

Tseng discloses a method of forming a substrate contact electrode. The method comprises the steps of:

applying a mask layer 44 to a silicon/active layer 50 (col 1, paragraph 0016)

patterning the mask layer 44 to expose/define masked areas/active regions and sidewall areas/inactive regions of the active layer (fig. 5)

oxidizing sidewall areas/inactive regions of the layer 50 to form liner oxide 58 that electrically isolates active regions 50 (col 2, paragraph 0018)

Regarding claim 2, Tseng discloses the layer 50/active layer is an active layer of a silicon-on-insulator wafer (col 1, paragraph 0016)

Regarding claim 3, Tseng disclose the step of partially removing the layer 50 in the unmasked regions/inactive regions (fig. 5)

Regarding claim 4, Tseng discloses that the layer 50/active layer having a thickness of 1000 angstroms (col 1, paragraph 0016)

Regarding claim 8, Tseng discloses that the mask layer comprises SiN (col 2,

Art Unit: 1765

paragraph 0017)

Regarding claim 9, Tseng discloses the step of removing the layer 44/mask layer on the active layer after oxidizing the layer 50 (col 2, paragraph 19)

Regarding claim 10, Tseng discloses that the active layer 50 is formed of silicon (col 2, paragraph 0017)

Regarding claims 11-13, Tseng discloses performing the oxidation at 1000 degree C by a furnace oxidation process (col 2, paragraph 0018)

3. Claims 16-19, 21, 23-25 are rejected under 35 U.S.C. 102(b) as being anticipated by Tseng (US 2002/0090763)

Tseng discloses a method of forming a substrate contact electrode. The method comprises the steps of:

applying a mask layer 44 to an active layer 50 (silicon) of a SOI wafer, the SOI having an active layer 46, the active layer 50 , an insulator 48 therebetween and a substrate (col 1, paragraph 0016, fig. 5)

patterning the mask layer to expose sidewall areas of the active layer 50 (fig. 5)

etching the exposed areas of the active layer to form trenches and partially remove the exposed area of layer 50 (col 2, paragraph 0017, fig. 5)

oxidizing the SOI wafer such that oxidized exposed sidewall area of the layer 50/active layer extend through the insulator 48 (col 2, paragraph 0018, fig. 6)

Regarding claim 17, Tseng discloses that the layer 50/active layer having a thickness of 1000 angstroms (col 1, paragraph 0016)

Regarding claim 18, Tseng discloses performing a photolithographic process to form patterned mask layer (col 2, paragraph 0017), which reads on utilizing photoresist to pattern the mask layer

Regarding claim 19, Tseng discloses that the mask layer comprises SiN (col 2, paragraph 0017)

Regarding claims 21, 23 Tseng discloses performing the oxidation at 1000 degree C by a furnace oxidation process (col 2, paragraph 0018)

Regarding claim 24, Tseng discloses the step of removing the layer 44/mask layer on the active layer after oxidizing the layer 50 (col 2, paragraph 19)

4. Claims 28-30, 34-36, 38 are rejected under 35 U.S.C. 102(b) as being anticipated by Tseng (US 2002/0090763)

Tseng discloses a method of forming a substrate contact electrode. The method comprises the steps of:

applying a mask layer 44 to an active layer 50 (silicon) of a SOI wafer, the SOI having an active layer 46, the active layer 50 , an insulator 48 therebetween and a substrate 46 (col 1, paragraph 0016, fig. 5)

patterning the mask layer to expose sidewall areas of the active layer 50 (fig. 5)

oxidizing the SOI wafer such that oxidized exposed sidewall area of the layer 50/active layer extend through the insulator 48 (col 2, paragraph 0018, fig. 6)

Regarding claims 29, 34, Tseng discloses performing a photolithographic process to form patterned mask layer (col 2, paragraph 0017), which reads on utilizing photoresist

to pattern the mask layer

Regarding claim 19, Tseng discloses that the mask layer comprises SiN (col 2, paragraph 0017)

Regarding claim 38 Tseng discloses performing the oxidation at 1000 degree C by a furnace oxidation process (col 2, paragraph 0018)

Regarding claim 35, Tseng discloses the step of removing the layer 44/mask layer on the active layer after oxidizing the layer 50 (col 2, paragraph 19)

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 5, 14-15, 22, 27, 33, 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tseng (US 2002/0090763) in view of Mirbedini et al (US 6,864,152)

Tseng method has been described above. Unlike the instant claimed invention as per claim 5, Tseng fails to disclose that the mask layer having a thickness of 10-1500 angstroms

Mirbedini discloses a method of fabricating trenches comprises the step of forming a mask layer 202 having a thickness of 50-500 angstroms (col 5, lines 50-52)

One skilled in the art at the time the invention was made would have found it obvious to modify Tseng method by forming a mask layer having the thickness as taught by

Mirbedini because Mirbedini discloses that the oxide layer/mask layer may have a thickness of 50-500 angstroms as known in the art (col 5, lines 48-50)

Unlike the instant claimed inventions as per claims 14-15, 22, 27, 33, 37, Tseng fails to disclose performing the oxidizing step in an ambient comprising oxygen to create an oxidation layer about 25-800 angstroms

Mirbedini discloses a method of fabricating trenches comprises the step of performing an oxidizing step in an ambient comprising oxygen to create an oxidation layer about 50-500 angstroms (col 7, lines 20-25)

Hence, one skilled in the art at the time the invention was made would have found it obvious to modify Tseng method by performing the oxidizing step in an ambient comprising oxygen to create an oxidation layer as per Mirbedini because Mirbedini discloses that it is conventional to grow an oxide under oxygen in a furnace, the oxide thickness may vary from about 50-500 angstroms (col 7, lines 15-24)

Allowable Subject Matter

7. Claims 7, 20, 26, 31, 32 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

Art Unit: 1765

8. Applicant's arguments with respect to the rejection(s) under 35 U.S.C 102(e) based on Mirbedini have been considered but are moot in view of the new ground(s) of rejection.

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lan Vinh whose telephone number is 571 272 1471. The examiner can normally be reached on M-F 8:30-5:30 PM.

Art Unit: 1765

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on 571 272 1465. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



LV
October 27, 2005